

WHAT IS CLAIMED IS:

1. A method for multicasting data to a plurality of UTOPIA devices comprising:

providing a plurality of UTOPIA physical devices  
5 connected to a common data bus, each UTOPIA physical device operable to communicate according to UTOPIA protocol, wherein each UTOPIA physical device is coupled to a respective one of a plurality of polling units, each  
10 polling unit coupled to a select controller, the select controller operable to initiate selection of two or more of the plurality of UTOPIA physical devices to receive multicast data;

for at least two of the polling units, receiving at the select controller an indication that the respective  
15 UTOPIA physical device is ready to receive data;

selecting for receipt of multicast data two or more of the UTOPIA devices that are ready to receive data by:

for each UTOPIA physical device to be selected transmitting, from the select controller, to the  
20 polling unit coupled to the UTOPIA physical device to be selected, an indication that the UTOPIA physical device to be selected should be selected; and

for each polling unit receiving an indication  
25 that the UTOPIA physical device to be selected should be selected, transmitting an address of the UTOPIA physical device coupled to the polling unit from the polling unit to the UTOPIA physical device coupled to the polling unit; and

30 after selection of the two or more of the UTOPIA devices, initiating, by the select

controller, transfer of the multicast data through the common bus to the selected UTOPIA physical devices.

5           2. The method of Claim 1, and further comprising receiving, for the at least two of the polling units, from the respective UTOPIA physical device, an indication that the respective UTOPIA physical device is ready to receive data.

10           3. The method of Claim 1, and further comprising polling, for the at least two of the polling units, the respective UTOPIA physical device, to determine if the respective UTOPIA physical device is ready to receive  
15 data.

          4. The method of Claim 3, wherein polling the respective UTOPIA physical device comprises transmitting an address of the respective UTOPIA physical device to  
20 the respective UTOPIA physical device.

          5. The method of Claim 1, wherein providing a plurality of UTOPIA physical devices comprises providing a plurality of digital subscriber line chipsets.

25           6. The method of Claim 1, wherein the plurality of polling units comprises at least eight polling units and wherein receiving, for at least two of the polling units, at the select controller an indication that the  
30 respective UTOPIA physical device is ready to receive data comprises receiving, for at least eight of the

polling units, an indication that the respective UTOPIA physical device is ready to receive data.

7. The method of Claim 1, and further comprising  
5 transferring the multicast data through the common bus to the selected UTOPIA physical devices.

8. The method of Claim 1, and further comprising  
receiving at the select controller an indication of the  
10 UTOPIA physical devices for which the multicast data are intended.

9. A method for multicasting data comprising:

receiving at a line card multicast data and an indication of a plurality of destinations for the multicast data;

5 transferring the multicast data over a common bus to a plurality of digital subscriber line chipsets associated with the plurality of destinations by:

10 selecting two or more of the plurality of digital subscriber line chipsets to receive multicast data;

enabling the two or more selected digital subscriber line chipsets to receive the multicast data; and

15 transferring the multicast data over the common bus to the selected digital subscriber line chipsets after selection and enabling of the two or more of the plurality of digital subscriber line chipsets.

10. The method of Claim 9, wherein transferring the  
20 multicast data over the common bus to the selected digital subscriber line chipsets after selection and enabling of the two or more of the digital subscriber line chipsets comprises transferring the multicast data over the common bus substantially simultaneously to the  
25 selected and enabled digital subscriber line chipsets.

11. The method of Claim 9, wherein transferring the  
multicast data over a common bus to a plurality of  
digital subscriber line chipsets after selection and  
30 enabling of the two or more of the plurality of digital subscriber line chipsets comprises transferring the

multicast data over a common bus to a plurality of digital subscriber line chipsets located on the line card.

5           12. The method of Claim 9, wherein the line card comprises one polling unit for each of the plurality of digital subscriber line chipsets, each polling unit operable to determine if the associated digital subscriber line chipset is ready to receive data.

10           13. The method of Claim 9, wherein the line card comprises at least two polling units, each polling unit coupled to one or more of the digital subscriber line chipsets and operable to determine if any of the one or  
15 more digital subscriber line chipsets is ready to receive data.

          14. The method of Claim 9, and further comprising receiving at a select controller on the line card an  
20 indication that the two or more of the plurality of digital subscriber line chipsets are ready to receive data.

          15. The method of Claim 12, and further comprising,  
25 for each polling unit associated with the two or more of the plurality of digital subscriber line chipsets, transmitting an indication to a select controller on the line card that the digital subscriber line chipset is ready to receive data.

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16. A apparatus comprising:

a buffer;

a plurality of UTOPIA physical devices each coupled to a common data bus;

5 a plurality of polling units each operable to poll at least a respective one of the UTOPIA physical devices to determine if the at least one respective UTOPIA physical device is ready to receive data;

a select unit operable to:

10 receive an indication from each of the plurality of polling units that a respective UTOPIA physical device is ready to receive data;

initiate enabling of selected ones of the UTOPIA physical devices that are ready to receive data and for which any data stored in the buffer is intended such that more than one of the UTOPIA physical devices are enabled to receive data at the same time; and

20 initiate transfer of data stored in the buffer over the common bus to the enabled UTOPIA physical devices; and

a transfer unit operable to transmit the data stored in the buffer substantially simultaneously to the enabled UTOPIA physical devices.

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17. The apparatus of Claim 16, and further comprising, for at least one of the polling units, a plurality of respective address lines and cell available lines coupling the polling unit to more than one of the plurality of UTOPIA physical devices.

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18. The apparatus of Claim 16, and further comprising, for each polling unit, an address line and a cell available line coupling the polling unit to exactly one of the UTOPIA physical devices.

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19. The apparatus of Claim 16, and further comprising, for each polling unit, a select line and a cell available line coupling the polling unit to the select unit.

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20. The apparatus of Claim 16, and further comprising a transfer unit operable to transfer data from the buffer to the common bus for receipt by the plurality of UTOPIA physical devices.

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21. The apparatus of Claim 19, wherein the select line comprises a multi-bit select line.

22. The apparatus of Claim 16, wherein the select unit is further operable to initiate enablement of all of the plurality of UTOPIA physical devices that are ready to receive data and for which any data stored in the buffer is intended.

23. The apparatus of Claim 16, wherein the buffer, the plurality of UTOPIA physical devices, the plurality of polling units, the select unit, and the transfer unit are formed on a line card.

24. A line card comprising:

a buffer;

a plurality of digital subscriber line chipsets each coupled to a common data bus;

5 a plurality of polling units each operable to poll at least a respective one of the UTOPIA physical devices to determine if the at least one respective UTOPIA physical device is ready to receive data, each polling unit coupled to at least one of the plurality of UTOPIA  
10 physical devices by an address line and a cell available line;

a select unit coupled to each of the plurality of polling units by respective select lines and cell available lines, the select unit operable to:

15 receive an indication from each of the plurality of polling units that a respective UTOPIA physical device is ready to receive data;

initiate enabling of selected ones of the UTOPIA physical devices that are ready to receive  
20 data and for which any data stored in the buffer is intended such that more than one of the UTOPIA physical devices are enabled to receive data at the same time; and

initiate transfer of data stored in the buffer  
25 over the common bus to the enabled UTOPIA physical devices; and

a transfer unit operable to transmit the data stored in the buffer substantially simultaneously to the enabled UTOPIA physical devices.



25. A line card comprising:

a buffer;

a plurality of digital subscriber line chipsets each coupled to a common data bus;

5 a plurality of polling units each operable to poll at least a respective one of the UTOPIA physical devices to determine if the at least one respective UTOPIA physical device is ready to receive data, each polling unit coupled a plurality of UTOPIA physical devices by  
10 respective address lines and a cell available lines;

a select unit coupled to each of the plurality of polling units by respective select lines and cell available lines, the select unit operable to:

receive an indication from each of the  
15 plurality of polling units that a respective UTOPIA physical device is ready to receive data;

initiate enabling of selected ones of the UTOPIA physical devices that are ready to receive data and for which any data stored in the buffer is  
20 intended such that more than one of the UTOPIA physical devices are enabled to receive data at the same time; and

initiate transfer of data stored in the buffer over the common bus to the enabled UTOPIA physical  
25 devices; and

a transfer unit operable to transmit the data stored in the buffer substantially simultaneously to the enabled UTOPIA physical devices.

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PATENT APPLICATION

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26. The line card of Claim 25, wherein the select lines coupling the plurality of polling units to the select unit comprise multiple lines.

5        27. The line card of Claim 25, wherein the select lines coupling the plurality of polling units to the select unit comprise a multi-bit line.

28. A apparatus comprising:

a storage means for temporarily storing data;

a plurality of UTOPIA physical devices each coupled  
to a common data bus;

5 a plurality of polling means each operable to poll  
at least a respective one of the UTOPIA physical devices  
to determine if the at least one respective UTOPIA  
physical device is ready to receive data;

a select means for:

10 receiving an indication from each of the  
plurality of polling means that a respective UTOPIA  
physical device is ready to receive data;

initiating enabling of selected ones of the  
UTOPIA physical devices that are ready to receive  
15 data and for which any data stored in the storage  
means is intended such that more than one of the  
UTOPIA physical devices are enabled to receive data  
at the same time; and

initiating transfer of data stored in the  
20 storage means over the common bus to the enabled  
UTOPIA physical devices; and

a transfer means for transmitting the data stored in  
the buffer substantially simultaneously to the enabled  
UTOPIA physical devices.

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